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US 4357500 A

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(54) Abstract Title
Anti-twist device for spiral wire

(57) A device 1 prevents kinking or twisting of a spiral wire 7 (e.g. for connecting a telephone handset 9 to a telephone base 8 or a computer keyboard to a computer housing). The device 1 comprises an elongate flexible member 2 for insertion into a hollow core of a spiral wire 7. The device 1 preferably comprises a length of elastic 3 extending along a length of the member 2, each end 3A, 3B of the elastic 3 being securable to a respective end of the spiral wire 7. In use, whereby when the wire 7 is stretched the elastic 3 is stretched, and when the wire 7 is not stretched the elastic returns the wire 7 over the member 2.

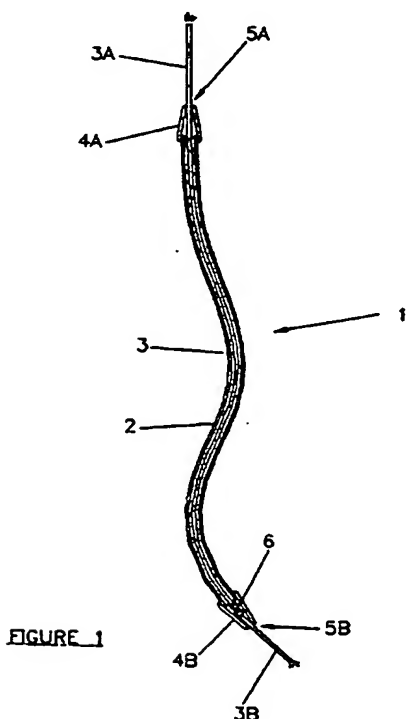


FIGURE 1

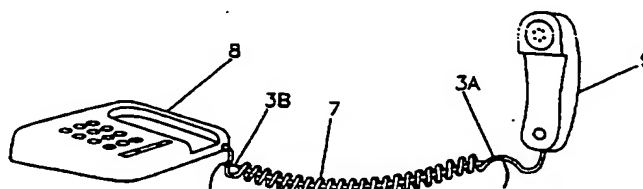


FIGURE 2

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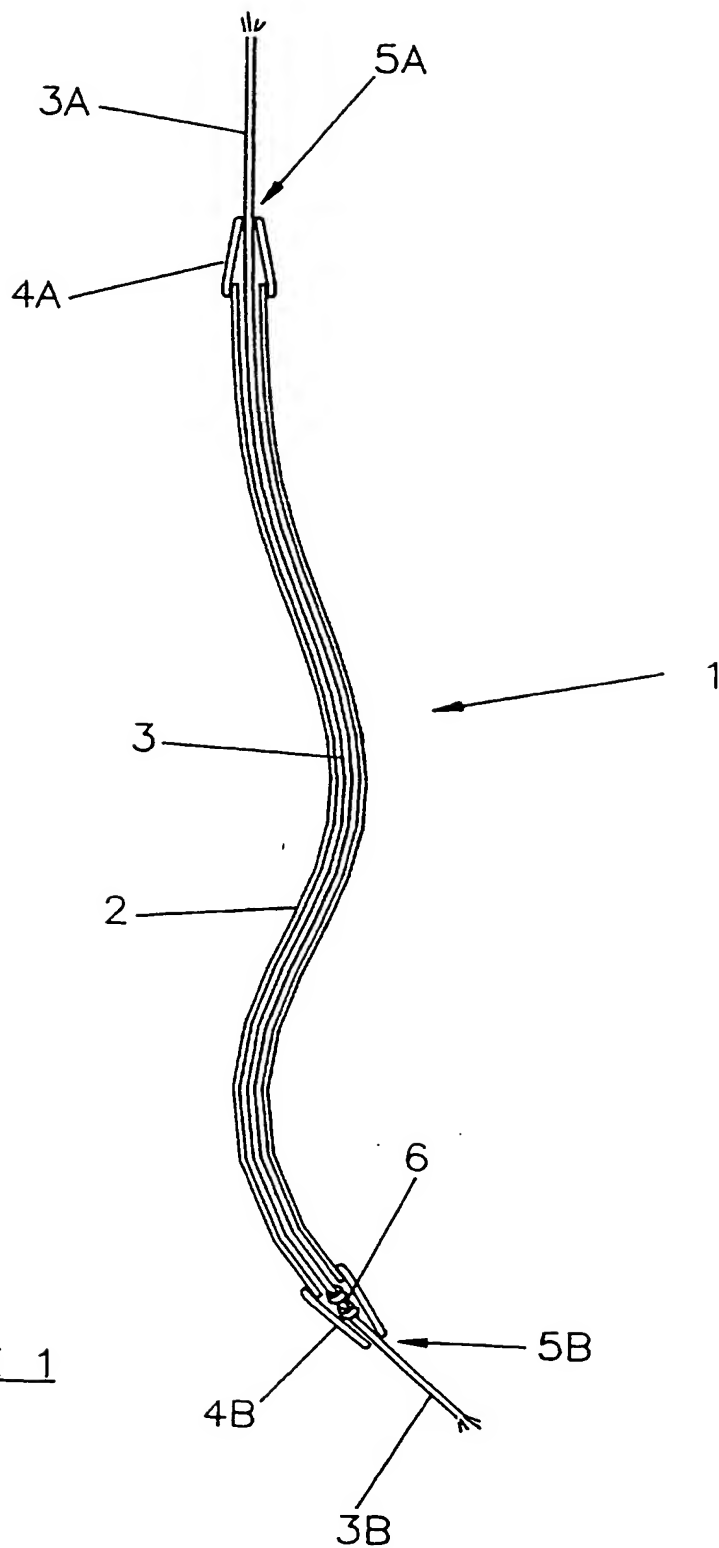
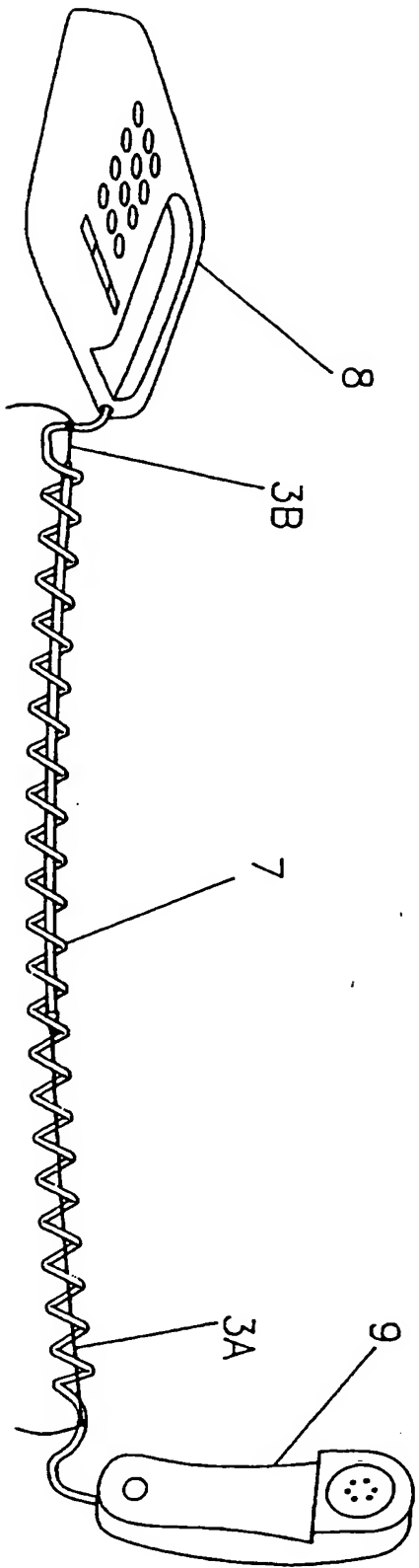
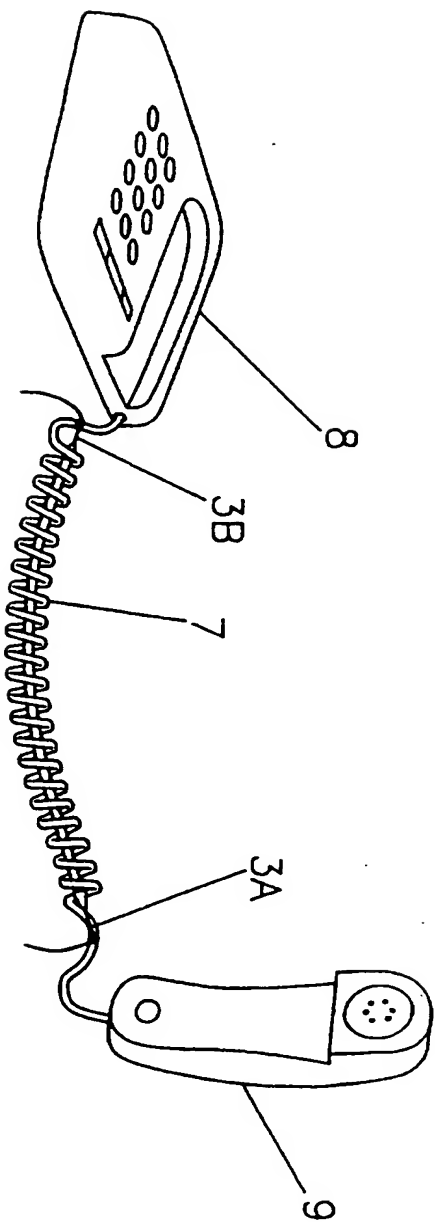


FIGURE 1



The present invention relates to a device for preventing the kinking or twisting of spiral wires.

Spiral wires are used in a number of applications, such as connecting a telephone handset to a telephone base or a computer keyboard to a computer housing. If the wire is twisted the wire can kink with two or more coils of the spiral interconnecting thus affecting the appearance and the "stretchability" of the wire. The invention seeks to provide a solution to this problem.

According to the present invention there is provided a device for preventing the kinking of spiral wires comprising an elongate flexible insert for insertion into the hollow core of the spiral wire.

Preferably the device further comprises a length of elastic supported along the length of the insert, each end of the elastic being securable to either end of the spiral wire whereby, when the wire is stretched the elastic is stretched, and when the wire is not stretched the elastic returns the wire over the insert.

Preferably the flexible insert is a hollow tube. The tube may be of plastics material.

In one embodiment of the invention the elastic is supported inside the hollow tube insert.

Preferably end caps are provided at either end of the hollow tube, each end cap having an

orifice through which the elastic passes. The end caps may be tapered to facilitate insertion of the insert into the hollow core of the spiral. The elastic may be knotted or otherwise restrained at one end to prevent said one end from passing through an end cap when the elastic is stretched.

The invention also extends to a spiral wire with the above device. The invention also extends to a computer, telephone, radio set, microphone, hair drier, door entry phones, bar code scanners or other appliance with the above device.

The invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows a cross section view of the device.

Figure 2 shows a perspective view of the device in use with a telephone with the spiral wire contracted, and

Figure 3 shows a perspective view of the device in use with a telephone with the spiral wire stretched.

Referring to Figure 1 there is shown a device 1 for preventing the kinking of spiral wires.

Device 1 comprises an elongate flexible insert in the form of a hollow flexible plastics tube 2 for insertion into the hollow core of the spiral wire. Supported along the length of the tube 2 is a length of elastic 3 which has ends 3A, 3B which project beyond the ends of the tube 2. A pair

of tapered end caps 4A,4B are provided at either end of the hollow tube. The caps each have an orifice 5A,5B respectively through which the elastic passes. The elastic 3 may include a knot 6 to restrain the elastic to prevent said one end 5B from passing through the end cap or tube when the elastic is stretched (as described hereinafter).

Referring now to Figures 2 and 3, the device of the invention may be used for a spiral wire 7 extending between the telephone base 8 and a handset 9 of a telephone. In use, the device is inserted into the core of the spiral wire 7, the tapered end caps facilitating this process. The tube 2 is generally the same length as the spiral wire 7. End 3B of elastic 3 is tied to the wire 7 adjacent the base 8 and end 3A of elastic 3 is tied to the wire 7 adjacent the handset 9.

When the handset 9 is placed on the telephone base 8 the spiral and insert adopts a generally "U-shaped" form with the spiral supported on the insert.

When the telephone is used as shown in Figure 3, the wire 7 is stretched, and thus the elastic 3 is stretched, with the coils of the spiral peeling off the tube 2. As the elastic stretches it extends through the orifice 5A, with the end 3B being retained by the knot 6. After use when the handset is replaced on the base, the wire is no longer stretched and the contraction of the elastic returns the wire into its contracted state over the insert, ie. as shown in Figure 2 again.

If desired, the ends 3A,3B of elastic 3 may be connected to ties or the like to secure the ends 3A,3B to the ends of the wire 7.

The device of the invention prevents the spiral wire from kinking or twisting.

The device of the invention may take a different form to that specifically described above. For example the insert need not be a hollow tube and the elastic could be on the outside of the insert. The end caps could be dispensed with or integrally formed with the tube, or just one end cap could be provided.

The device could be made in a variety of lengths and of any desired colour/s. The device could be sold in combination with a spiral wire, and the spiral wire could be part of equipment other than a telephone, e.g a computer, radio set, microphone, hair drier, door entry phones, bar code scanners or other appliances.

Further modifications will be apparent to those skilled in the art without departing from the scope of the present invention.

CLAIMS

1. A device intended to prevent kinking and/or twisting of a spiral wire comprising an elongate flexible member for insertion into a hollow core of a spiral wire.
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2. A device as claimed in claim 1, wherein the device further comprises a length of elastic extending along a length of the member.
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3. A device as claimed in claim 2, wherein each end of the elastic is securable to a respective end of the spiral wire, in use, whereby when the wire is stretched the elastic is stretched, and when the wire is not stretched the elastic returns the wire over the member.
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4. A device as claimed in either of claims 1 to 3, wherein the member is a hollow tube.
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5. A device as claimed in claim 4, wherein the tube is formed of a plastics material.
- 25 6. A device as claimed in either of claims 4 or 5, wherein the elastic is retained within the hollow tube.
7. A device as claimed in claim 6, wherein end caps are

provided at either end of the hollow tube, each end cap having an orifice through which the elastic passes.

- 5 8. A device as claimed in claim 7, wherein the end caps are tapered to facilitate insertion of the member into the hollow core of the spiral wire.
- 10 9. A device as claimed in either of claims 7 or 8, wherein the elastic is knotted or otherwise restrained at one end to prevent said one end from passing through an end cap when the elastic is stretched.
- 15 10. A spiral wire including a device according to any of claims 1 to 9.
- 20 11. An appliance including a spiral wire, the spiral wire including a device according to any of claims 1 to 9.
- 20 12. An appliance according to claim 11, the appliance being selected from any one of a computer, telephone, radio set, microphone, hair drier, door entry phone, or bar code scanner.
- 25 13. A device as hereinbefore described with reference to the accompanying drawings.
14. A spiral wire including a device as hereinbefore described with reference to the accompanying drawings.

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15. An appliance including a spiral wire having a device as hereinbefore described with reference to the accompanying drawings.

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INVESTOR IN PEOPLE

Application No: GB 9809541.7
Claims searched: 1-15

Examiner: Richard Nicholls
Date of search: 23 September 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): H2C (CFX)

Int Cl (Ed.6): H01B 7/06 ; H04M 1/15

Other: Online databases: WPI, EPODOC, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 4357500 A (Nilsen) see especially all figures and column 1 lines 41-42	1,10,11,12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.